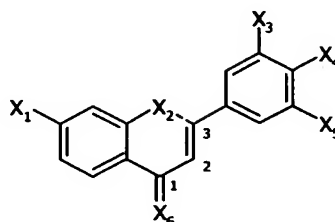


# CLAIMS

1- Substituted 1,3-diphenylprop-2-en-1-one derivative, characterized in that it is represented by formula (I) below :



(I)

in which :

X1 represents a halogen or a -R1 group or a group corresponding to the following formula : -G1-R1,

X2 represents a hydrogen atom or a thionitroso group or a hydroxy group or an alkylcarbonyloxy or an unsubstituted alkyloxy group or a thiol group or an alkylthio group or an alkylcarbonylthio group, X2 can also represent an oxygen or sulfur atom bound to carbon 3 of the propene chain, so as to form a derivative of the type 2-phenyl-4H-1-benzopyran-4-one,

X3 represents a -R3 group or a group corresponding to the following formula : -G3-R3,

X4 represents a halogen or a thionitroso group or a -R4 group or a group corresponding to the following formula : -G4-R4,

X5 represents a -R5 group or a group corresponding to the following formula : -G5-R5,

X6 is an oxygen atom or a nitrogen atom, in the case where X6 is a nitrogen atom, it carries a hydrogen atom or a hydroxy group or an alkyloxy group.

5 R1, R3, R4, R5, which are the same or different, represent a hydrogen atom or an alkyl group substituted or not by a substituent which is part of group 1 or group 2 defined hereinbelow,

10 G1, G3, G4, G5, which are the same or different, represent an oxygen or sulfur atom,

with at least one of the groups X1, X3, X4 or X5 corresponding to the formula -G-R, and

15 with at least one of the groups R1, R3, R4 or R5 present in the form of an alkyl group containing at least one substituent from group 1 or 2, said alkyl group being bound directly to the ring or being associated with a group G according to the formula -GR,

20 substituents from group 1 are selected in the group consisting of carboxy groups corresponding to the formula : -COOR<sub>6</sub> and carbamoyl groups corresponding to the formula : -CONR<sub>6</sub>R<sub>7</sub>,

25 substituents from group 2 are selected in the group consisting of sulfonic acid (-SO<sub>3</sub>H) and sulfonamide groups corresponding to the formula : -SO<sub>2</sub>NR<sub>6</sub>R<sub>7</sub>,

with R<sub>6</sub> and R<sub>7</sub>, which are the same or different, representing a hydrogen atom or an alkyl group possibly substituted by at least one group of the type 1 or 2,

30 the optical and geometric isomers, racemates, tautomers, salts, hydrates and mixtures thereof,

with the exception of compounds represented by formula (I) in which :

-  $X_1$ ,  $X_2$ ,  $X_3$  and  $X_5$  each represent a hydrogen atom,  $X_6$  represents an oxygen atom and  $X_4$  represents a group corresponding to the formula  $-O-CR_8R_9-COOR_{10}$ , where  $R_8$  and  $R_9$ , which are the same or different, represent a C1 to C2 alkyl group, and  $R_{10}$  represents a hydrogen atom or a C1 to C7 alkyl group, and

5 -  $X_2$ ,  $X_3$  and  $X_5$  each represent a hydrogen atom,  $X_1$  represents a halogen atom or a R1 or -G1R1 group, where R1 represents an unsubstituted C1-C2 alkyl group and G1 represents an oxygen atom,  $X_6$  represents an oxygen atom and  $X_4$  represents a group corresponding to the formula  $-O-CR_{11}R_{12}-COOR_{10}$ , where  $R_{11}$  and  $R_{12}$ , which are the same or different, represent a hydrogen atom or a C1 to C2  
10 alkyl group, and  $R_{10}$  represents a hydrogen atom or a C1 to C7 alkyl group, and  
-  $X_2$  represents a hydrogen atom and  $X_1$  represents -G1R1 where G1 represents an oxygen atom and R1 represents  $CH_2COOH$ .

2- Derivative according to claim 1, characterized in that it can correspond to  
15 the cis or trans conformation or a mixture thereof.

3- Derivative according to claim 1, characterized in that none of the groups  $X_3$ ,  $X_4$  and  $X_5$  represents a hydrogen atom.

20 4- Derivative according to claim 1, characterized in that one or two of the groups  $X_3$ ,  $X_4$  and  $X_5$  represents a hydrogen atom and  $X_1$  is an unsubstituted alkyl group.

25 5- Derivative according to claim 1, characterized in that one or two of the groups  $X_3$ ,  $X_4$  and  $X_5$  represents a hydrogen atom and  $X_2$  represents a thionitroso group or an alkylcarbonyloxy group or a thiol group or an alkylthio group or an alkylcarbonylthio group,  $X_2$  can also represent an oxygen or sulfur atom bound to carbon 3 of the propene chain, so as to form a derivative of the type 2-phenyl-4H-1-benzopyran-4-one.

30 6- Derivative according to claim 1, characterized in that one or two of the groups  $X_3$ ,  $X_4$  and  $X_5$  represents a hydrogen atom and at least one of the groups  $X_1$ ,  $X_3$ ,  $X_4$  or  $X_5$  is the GR form in which G is a sulfur atom.

7- Derivative according to any one of the preceding claims, characterized in that one or two of the groups X3, X4 and X5 represents a hydrogen atom and at least one of the groups X1, X3, X4 or X5 is the—G-R form in which G is an oxygen atom and R is an alkyl group substituted by a substituent from group 1 in which R6 is not a hydrogen atom.

8- Derivative according to any one of the preceding claims, characterized in that one or two of the groups X3, X4 and X5 represents a hydrogen atom and at least one of the groups X1, X3, X4 or X5 is the GR form in which G is an oxygen atom and R is an alkyl group substituted by a sulfonamide such as defined in claim 1.

9- Derivative according to any one of the preceding claims, characterized in that X4 is a thionitroso group or a —R4 group or a group corresponding to the formula —G4-R4, G4 and R4 being such as defined in claim 1.

10- Derivative according to any one of the preceding claims, characterized in that X2 is a thionitroso group or a hydroxy group or an alkyloxy group or a thiol group or an alkylthio group.

11- Derivative according to any one of the preceding claims, characterized in that X4 is a thionitroso group or a —R4 group or a group corresponding to the formula —G4-R4 and X2 is a thionitroso group or a hydroxy group or an alkyloxy group or a thiol group or an alkylthio group, G4 and R4 being such as defined in claim 1.

12- Derivative according to any one of claims 1 to 6, characterized in that X1 represents a —R1 group or a group corresponding to the formula -G1-R1, with R1 being an alkyl group substituted by a substituent which is part of group 1 and G1 and the substituent from group 1 being such as defined in claim 1.

13- Derivative according to any one of the preceding claims, characterized in that X1 is a -G1-R1 group.

5 14- Derivative according to any one of claims 1 to 12, characterized in that X1 is a -G1-R1 group in which G1 is an oxygen atom.

10 15- Derivative according to any one of the preceding claims, characterized in that X1 represents a -R1 group or a group corresponding to the formula -G1-R1, with R1 being an alkyl group substituted by a substituent which is part of group 2 and G1 and the substituent from group 2 being such as defined in claim 1.

15 16- Derivative according to any one of the preceding claims, characterized in that X3 represents a -R3 group or a group corresponding to the formula -G3-R3, with R3 being an alkyl group substituted by a substituent which is part of group 1 and G3 and the substituent from group 1 being such as defined in claim 1.

20 17- Derivative according to any one of claims 1 to 15, characterized in that X3 represents a -R3 group or a group corresponding to the formula -G3-R3, with R3 being an alkyl group substituted by a substituent which is part of group 2 and G3 and the substituent from group 2 being such as defined in claim 1.

25 18- Derivative according to any one of the preceding claims, characterized in that X4 represents a -R4 group or a group corresponding to the formula -G4-R4 with R4 being an alkyl group substituted by a substituent which is part of group 1 and G4 and the substituent from group 1 being such as defined in claim 1.

19- Derivative according to any one of the preceding claims, characterized in that X4 is a -G4-R4 group.

30 20- Derivative according to any one of the preceding claims, characterized in that X4 is a -G4-R4 group in which G4 is an oxygen atom.

21- Derivative according to any one of the preceding claims, characterized in that X4 is a -G4-R4 group in which G4 is an oxygen atom, and X3 or X5 respectively represent R3 or G3R3, on the one hand, and R5 or G5R5, on the other hand, with R3 and R5 being alkyl groups containing a substituent from group 1.

22- Derivative according to any one of the preceding claims, characterized in that X4 represents a -R4 group or a group corresponding to the formula -G4-R4 with R4 being an alkyl group substituted by a substituent which is part of group 2.

23- Derivative according to any one of the preceding claims, characterized in that X1 represents a halogen.

24- Derivative according to any one of the preceding claims, characterized in that X1 represents a -R1 group with R1 being a C1 to C4 alkyl group substituted or not by at least one substituent which is part of group 1 or group 2.

25- Derivative according to any one of the preceding claims, characterized in that X1 represents a -G1R1 group with R1 being a C1 to C3 alkyl group substituted or not by at least one substituent which is part of group 1 or group 2.

26- Derivative according to any one of the preceding claims, characterized in that X1 represents a -R1 group with R1 being a C5 to C24 alkyl group substituted or not by at least one substituent which is part of group 1 or group 2.

27- Derivative according to any one of the preceding claims, characterized in that X1 represents a -G1R1 group with R1 being a C4 to C24 alkyl group substituted or not by at least one substituent which is part of group 1 or group 2.

28- Derivative according to any one of the preceding claims, characterized in that X6 represents an oxygen atom.

29- Derivative according to any one of the preceding claims, characterized in that X1, X3, X4 or X5 represents  $\text{OC}(\text{CH}_3)_2\text{COOR}_6$ .

5 30- Derivative according to any one of the claims 1 to 28, characterized in that X1, X3, X4 or X5 represents  $\text{SC}(\text{CH}_3)_2\text{COOR}_6$ .

31- Derivative according to any one of the preceding claims, characterized in that it is selected in the group consisting of 1-[2-hydroxy-4-chlorophenyl]-3-[4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-chlorophenyl]-3-[4-*isopropyl*oxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[4-*isopropyl*oxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-methylcarbonyloxyphenyl]-3-[4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-methylcarbonyloxyphenyl]-3-[4-*isopropyl*oxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[4-carboxydimethylmethyloxyphenyl]-1-hydroxyiminoprop-2-ene and 1-[2-hydroxyphenyl]-3-[4-*isopropyl*oxycarbonyldimethylmethyloxyphenyl]-1-hydroxyiminoprop-2-ene, 1-[2-hydroxy-4-carboxydimethylmethyloxyphenyl]-3-[3,5-*di-tert*butyl-4-hydroxyphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-ethyloxy carbonyldimethylmethyloxyphenyl]-3-[3,5-*di-tert*butyl-4-hydroxyphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[3-carboxydimethylmethyloxy-4-hydroxy-5-*tert*butylphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[3-*isopropyl*oxycarbonyldimethylmethyloxy-4-hydroxy-5-*tert*butylphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-chlorophenyl]-3-[3-carboxydimethylmethyloxy-4-hydroxy-5-*tert*butylphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-chlorophenyl]-3-[3-*isopropyl*oxycarbonyldimethylmethyloxy-4-hydroxy-5-*tert*butylphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[3-carboxydimethylmethyl-4-hydroxy-5-*tert*butylphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[3-*isopropyl*oxycarbonyldimethylmethyl-4-hydroxy-5-*tert*butylphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-chlorophenyl]-3-[3,5-dimethoxy-4-carboxydimethylmethyloxy]prop-2-en-1-one, 1-[2-hydroxy-4-chlorophenyl]-3-[3,5-

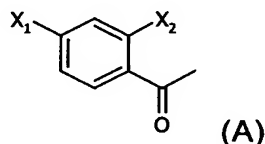
dimethoxy-4-*isopropoxy*carbonyldimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-  
 hydroxyphenyl]-3-[3,5-dimethoxy-4-carboxydimethylmethyloxyphenyl]prop-2-en-1-  
 one, 1-[2-hydroxyphenyl]-3-[3,5-dimethoxy-4-*isopropoxy*carbonyl  
 dimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-carboxydimethyl  
 5 methyloxyphenyl]-3-[3,5-di-methoxy-4-hydroxyphenyl]prop-2-en-1-one, 1-[2-  
 hydroxy-4-*isopropoxy*carbonyldimethylmethyloxyphenyl]-3-[3,5-dimethoxy-4-  
 hydroxyphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-chlorophenyl]-3-[3,4-dihydroxy-5-  
 carboxydimethylmethyloxyphenyl]-2-prop-2-en-1-one, 1-[2-hydroxy-4-  
 chlorophenyl]-3-[3,4-dihydroxy-5-*isopropoxy*carbonyldimethylmethyloxyphenyl]-  
 10 2-propen-1-one, 1-[2-hydroxy-4-carboxydimethylmethyloxyphenyl]-3-[3,5-dimethyl-  
 4-hydroxyphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-  
*isopropoxy*carbonyldimethylmethyloxyphenyl]-3-[3,5-dimethyl-4-  
 hydroxyphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-chlorophenyl]-3-[3,5-dimethyl-4-  
 carboxydimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-chlorophenyl]-  
 15 3-[3,5-dimethyl-4-*isopropoxy*carbonyldimethylmethyloxyphenyl]prop-2-en-1-one,  
 1-[2-hydroxyphenyl]-3-[3,5-dimethyl-4-carboxydimethylmethyloxyphenyl]prop-2-en-  
 1-one, 1-[2-hydroxyphenyl]-3-[3,5-dimethyl-4-*isopropoxy*carbonyl  
 dimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[3-  
 carboxydimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[3-  
 20 *isopropoxy*carbonyldimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-  
 hydroxyphenyl]-3-[4-carboxydimethylmethylthiophenyl]prop-2-en-1-one, 1-[2-  
 hydroxyphenyl]-3-[4-*isopropoxy*carbonyldimethylmethylthiophenyl]prop-2-en-1-  
 one, 1-[2-mercapto-4-methyloxyphenyl]-3-[4-  
 carboxydimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-mercapto-4-  
 25 methyloxyphenyl]-3-[4-*isopropoxy*carbonyldimethylmethyloxyphenyl]prop-2-en-1-  
 one, 1-[2-hydroxy-4-ethoxycarbonyldimethylmethyloxyphenyl]-3-[3,5-ditertbutyl-4-  
 hydroxyphenyl]prop-2-en-1-one, 1-[2-hydroxy-4-carboxydimethylmethyloxyphenyl]-  
 3-[3,5-dibromo-4-hydroxyphenyl]prop-2-en-1-one,  
 1-[2-hydroxy-4-carboxydimethylmethyloxyphenyl]-3-[3-hydroxyphenyl]prop-2-en-1-  
 30 one,  
 1-[2-hydroxy-4-carboxydimethylmethyloxyphenyl]-3-[4-methylthiophenyl]prop-2-en-  
 1-one,

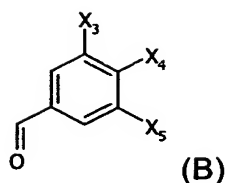


- 1-[2-hydroxy-4-carboxydimethylmethyloxyphenyl]-3-[4-methylthiophenyl]prop-2-en-1-one,
- 1-[2,4-dihydroxyphenyl]-3-[4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one, 1-[2-hydroxyphenyl]-3-[4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one,
- 5 1-[4-chlorophenyl]-3-[3,5-dimethyl-4-tertbutyloxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one,
- 1-[4-chlorophenyl]-3-[3,5-dimethyl-4-isopropyloxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one,
- 10 1-[4-chlorophenyl]-3-[3,5-dimethyl-4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one,
- 1-[2-hydroxy-4-carboxydimethylmethyloxyphenyl]-3-[4-chlorophenyl]prop-2-en-1-one,
- 1-[2-hydroxyphenyl]-3-[4-carboxydimethylmethylthiophenyl]prop-2-en-1-one,
- 15 1-[4-chloro-2-hydroxyphenyl]-3-[4-carboxydimethylmethylthiophenyl]prop-2-en-1-one,
- 1-[4-carboxydimethylmethyloxyphenyl]-3-[3,5-dimethyl-4-hydroxyphenyl]prop-2-en-1-one,
- 1-[4-methylthiophenyl]-3-[4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one,
- 1-[4-carboxydimethylmethyloxyphenyl]-3-[4-chlorophenyl]prop-2-en-1-one,
- 20 1-[4-carboxydimethylmethylthiophenyl]-3-[4-methylthiophenyl]prop-2-en-1-one,
- 1-[2-hydroxy-4-bromophenyl]-3-[3,5-dimethyl-4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one,
- 1-[4-carboxydimethylmethyloxyphenyl]-3-[4-methylthiophenyl]prop-2-en-1-one,
- 1-[4-methylthiophenyl]-3-[3,5-dimethyl-4-tertbutyloxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one,
- 25 1-[4-methylthiophenyl]-3-[3,5-dimethyl-4-isopropyloxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one,
- 1-[4-methylthiophenyl]-3-[3,5-dimethyl-4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one,
- 30 1-[2-methoxyphenyl]-3-[3,5-dimethyl-4-tertbutyloxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one,
- 1-[2-methoxyphenyl]-3-[3,5-dimethyl-4-carboxydimethylmethyloxyphenyl]prop-2-en-1-one,

- 1-[4-hexyloxyphenyl]-3-[3,5-dimethyl-4-  
tertbutyloxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one,  
1-[4-hexyloxyphenyl]-3-[3,5-dimethyl-4-carboxydimethylmethyloxyphenyl]prop-2-  
en-1-one,
- 5 2-(3,5-dimethyl-4-tertbutyloxycarbonyldimethylmethyloxyphenyl)-7-chloro-4H-1-  
benzopyran-4-one,  
2-(3,5-dimethyl-4-carboxydimethylmethyloxyphenyl)-7-chloro-4H-1-benzopyran-4-  
one,
- 10 1-[2-methyloxy-4-chlorophenyl]-3-[3,5-dimethyl-4-  
tertbutyloxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one,  
1-[2-methyloxy-4-chlorophenyl]-3-[3,5-dimethyl-4-  
carboxydimethylmethyloxyphenyl]prop-2-en-1-one,
- 15 1-[4-heptylphenyl]-3-[3,5-dimethyl-4-  
tertbutyloxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one,  
1-[4-heptylphenyl]-3-[3,5-dimethyl-4-carboxydimethylmethyloxyphenyl]prop-2-en-  
1-one,
- 1-[4-bromophenyl]-3-[3,5-dimethyl-4-  
tertbutyloxycarbonyldimethylmethyloxyphenyl]prop-2-en-1-one,  
1-[4-bromophenyl]-3-[3,5-dimethyl-4-carboxy  
20 dimethylmethyloxyphenyl]prop-2-en-1-one,  
1-[2-hydroxyphenyl]-3-[3,5-dimethyl-4-isopropoxyloxycarbonyldimethyl  
methyloxyphenyl]prop-2-en-1-one.

- 32- Method for preparing compounds represented by formula (I),  
25 characterized in that it comprises contacting in basic or acidic medium at least one  
compound corresponding to formula (A) with at least one compound  
corresponding to formula (B), formulas (A) and (B) being :





formulas in which X1, X2, X3, X4 and X5 are defined as in claim 1.

33. Pharmaceutical composition comprising, in a pharmaceutically acceptable support, at least one compound represented by formula (I) such as defined in any one of claims 1 to 31.

34. Pharmaceutical composition according to the preceding claim, for the treatment or prophylaxis of a cerebrovascular pathology.

35. Pharmaceutical composition according to claim 34, characterized in that the cerebrovascular pathology is cerebral ischemia.

36. Pharmaceutical composition according to claim 34, characterized in that the cerebrovascular pathology is hemorrhagic stroke.

37. Use of at least one substituted 1,3-diphenylprop-2-en-1-one derivative for preparing a pharmaceutical composition for treating in a preventive or preferably curative manner a cerebrovascular pathology and more particularly cerebral ischemia, characterized in that the substituted 1,3-diphenylprop-2-en-1-one derivative is represented by general formula (I) such as defined in any one of claims 1 to 31, including compounds represented by general formula (I) in which :

- X<sub>1</sub>, X<sub>2</sub>, X<sub>3</sub> and X<sub>5</sub> each represent a hydrogen atom, X<sub>6</sub> represents an oxygen atom and X<sub>4</sub> represents a group corresponding to the formula -O-CR<sub>8</sub>R<sub>9</sub>-COOR<sub>10</sub>, where R<sub>8</sub> and R<sub>9</sub>, which are the same or different, represent a C1 to C2 alkyl group, and R<sub>6</sub> represents a hydrogen atom or a C1 to C7 alkyl group, and

- X<sub>2</sub>, X<sub>3</sub> and X<sub>5</sub> each represent a hydrogen atom, X<sub>1</sub> represents a halogen atom or a R1 or -G1R1 group, where R1 represents an unsubstituted C1 to C2 alkyl group and G1 represents an oxygen atom, X<sub>6</sub> represents an oxygen atom and X<sub>4</sub> represents a group corresponding to the formula -O-CR<sub>11</sub>R<sub>12</sub>-COOR<sub>10</sub>, where R<sub>11</sub>

and  $R_{12}$ , which are the same or different, represent a hydrogen atom or a C1 to C2 alkyl group, and  $R_{10}$  represents a hydrogen atom or a C1 to C7 alkyl group, and -  $X_2$  represents a hydrogen atom and  $X_1$  represents -G1R1 where G1 represents an oxygen atom and R1 represents  $CH_2COOH$ .